

## CHAPTER 10

## RECOGNITION OF A CHEMICAL CASUALTY

**1001. Introduction.**

- a. It is essential that medical personnel are familiar with the signs and symptoms of chemical agent poisoning to avoid repetition of the experience of World War I in which “medical officers frankly admitted that they were so handicapped by their lack of experience of cases of gas poisoning that they were often in doubt whether they were dealing with persons suffering from gas poisoning or not.”
- b. Medical and tactical intelligence channels should communicate with each other as early as possible. Threat information on potential use of CW weapons by enemy forces is important for the planning and execution of medical operations. Once CW weapons have been used, identification of agents will be important to medical intelligence channels for operational purposes.

**1002. General.**

Medical units should rely on information not only from detectors and intelligence sources but also from the casualties themselves. This applies particularly to agents for which at present there is no satisfactory detector, such as incapacitating agents. Some of the problems in the recognition and diagnosis of casualties suffering from the effects of chemical operations are discussed here. Medical personnel must bear in mind that with nerve agents, for example, symptoms and signs may range from mild, such as miosis, headache, and tightness of the chest to signs and symptoms associated with severe poisoning such as convulsions and respiratory failure. The nature and timing of symptoms will vary with the route of exposure. Although choking agents are less likely to be employed, the possibility of their use should not be forgotten, and here the danger is that the quiescent period which follows the initial poisoning might be mistaken for recovery and men or women sent back to duty even after a lethal dose. Battle casualties whose behavioral changes are not compatible with the physical signs of disability must be examined carefully to exclude the possibility of a psychomimetic agent having been used. When chemical agents have been used by the enemy, it is important that the fullest and earliest information be given to medical units to facilitate the diagnosis of individual cases and to permit the arrangements for the reception of casualties.

**1003. Recognition of a Casualty of Chemical Operations.**

Any individual who suddenly becomes a casualty without being wounded or who is suffering a greater degree of incapacitation than is compatible with his or her wound should be considered a possible chemical casualty. The differential diagnosis will include the possibility of psychiatric casualties. It is unlikely that chemical agents would produce single casualties under field conditions and a chemical attack should be suspected with any sudden increase in numbers

of unexplained casualties. If chemical operations are unlikely, and if only a few people are affected, another toxic hazard may be more probable (for example, carbon monoxide).

#### **1004. Questioning Casualties.**

Under operational conditions the medical situation may be complicated by the psychological effects. The medical officer's questions should be along the following lines:

- a. Determine whether the casualty has been caused by a chemical agent:
  - (1) Was the casualty wearing full protective equipment at the time of the attack?
  - (2) Were there any aircraft or artillery bombardments in the area at the time of the attack?
  - (3) Was there any evidence of spray, liquid droplets or smoke?
  - (4) Was anybody else affected and if so, how was he or she affected?
  - (5) Did the casualty notice any unusual smell? (This is not a very reliable symptom under battle conditions, but it should be considered.)
  - (6) Did the available detection equipment respond positively?
- b. Determine the identity of the agent:
  - (1) What subjective effects were noticed and how soon?
    - (a) An unexplained sudden runny nose.
    - (b) A feeling of choking or tightness in the chest or throat.
    - (c) Blurring of vision and difficulty in focusing the eyes on close objects.
    - (d) Irritation of the eyes.
    - (e) Unexplained difficulty in breathing or increased rate of breathing.
    - (f) Sudden feeling of depression.
    - (g) Anxiety or restlessness.
    - (h) Dizziness or light-headedness.
    - (i) Slurred speech.
    - (j) Nausea.
    - (k) Muscular weakness.
  - (2) Was there any delay between exposure or contamination and the onset of effects, and if so, for how long?
  - (3) Did the effects persist after adjustment of the respirator?
  - (4) Has the casualty used any self-injection device? If so, did the symptoms improve or deteriorate?
  - (5) Is the casualty's behaviour normal?
- c. Assess the dose of agent received:
  - (1) Was the casualty exercising or at rest?
  - (2) Was the casualty in the open or under cover?
  - (3) For how long was the agent inhaled? How long was the interval between suspected contamination and decontamination?

**1005. Types of Casualties.**

On the chemical battlefield, the following types of casualties maybe seen:

a. *Conventional Casualties.*

- (1) The conventional casualties with no chemical injury and with no contamination of their clothing and equipment.
- (2) The conventional casualties with no chemical injury but with contamination of their clothing and equipment.

b. *Direct Chemical Casualties.*

- (1) The chemical casualty with no other injury.
- (2) The mixed casualty who has a conventional and chemical injury. Since chemical munitions often include explosive burst charges, such injuries may occur as part of a chemical agent attack. They may also occur when the chemical injury and conventional injury occur at different times. Other types of mixed casualties may occur if nuclear or biological weapons are used, and chemical injuries may occur combined with natural illness as well. (Infectious disease still accounts for the majority of casualties in contemporary warfare.)

c. *Indirect Chemical Casualties.*

- (1) *Casualties suffering combat stress reaction (CSR).* Combat stress reaction occurs often in warfare, but maybe more frequent where the chemical warfare threat exists. The soldier will have additional stresses of isolation from wearing the chemical protective ensemble, additional fatigue from wearing the garments and fear of chemical agents. As in World War I, the differential diagnosis between the CSR casualties and chemical casualties may sometimes be difficult.
- (2) *Casualties with side effects from chemical agent antidotes.* Some of the available antidotes may have undesirable side effects when taken inappropriately, or in large enough quantities. Atropine, for instance, causes decreased heat tolerance at a dose of 1 mg. Higher doses may cause tachycardia, dryness of the mouth, and decreased sweating. Medical personnel must be aware of the side effects of the available antidotes and be alert for their appearance.
- (3) *Heat casualty.* Wearing the protective ensemble makes dissipation of excess body heat more difficult. Wearing the mask also makes water intake very difficult. Both will increase the probability of heat exhaustion or heat stroke.